



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/563,863	06/05/2006	Sumihide Yanase	1417-526	1936
23117 7590 12/12/2008 NIXON & VANDERHYE, PC 901 NORTH GLEBE ROAD, 11TH FLOOR ARLINGTON, VA 22203				
EXAMINER				
BUIE, NICOLE M				
ART UNIT		PAPER NUMBER		
1796				
MAIL DATE		DELIVERY MODE		
12/12/2008		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/563,863

**Applicant(s)**

YANASE ET AL.

**Examiner**

NICOLE M. BUIE

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 September 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 6-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date: \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_
- Paper No(s)/Mail Date: \_\_\_\_\_

**DETAILED ACTION**

***Response to Amendment***

The amendment filed on 09/12/2008 has been entered. Claims 1-4 and 6-8 remain pending in the application. The previous claim objection of claim 5 is withdrawn in light of Applicant's cancelling of claim 5.

***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

**Claim 1 and 6** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 5,732,322).

**Regarding claim 1**, Nakamura et al. discloses a resin composition for sliding member (Abstract, C1/L5-8), comprising 1 to 25% of component A selected from the group consisting of phosphates and barium sulfate (Abstract, C2/L15-24), which overlaps with the claimed range of

6 to 45%. Nakamura et al. further discloses 1 to 15% magnesium silicate and the balance of a tetrafluoroethylene resin (Abstract, C2/L15-24).

However, Nakamura et al. does not disclose both phosphate and barium sulfate in the same composition. Regarding the phosphate and barium sulfate of said claim, since both substances have an effect of facilitating formation of lubricating film of polytetrafluoroethylene on the sliding surface of the mating member is taught by Nakamura et al. (C4/L61-66), it is well settled to use a combination of them as *In re Kerkhoven*, 205 USPQ 1069, 1072 (CCPA 1980). i.e., it is well settled that is a *prima facie* obvious to combine two ingredients each of which is taught by the prior art to be useful for the same purpose.

Regarding the concentrations of phosphate and barium sulfate of said claim, since the instant specification is silent to unexpected results, the specific concentrations of phosphate and barium sulfate is not considered to confer patentability to the claims. As the formation amount of lubricating film is variable that can be modified by adjusting said concentrations of phosphate and barium sulfate, the precise concentrations of phosphate and barium sulfate would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed concentrations of phosphate and barium sulfate cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the concentrations of phosphate and barium sulfate to obtain desired formation amount of lubricating film (*In re Boesch*, 617 F.2d. 272,205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

**Regarding claim 6**, Nakamura et al. discloses a sliding member comprising a steel black plate and a porous sintered metal layer formed on the steel back plate (C6/L18-21), wherein pores and surface of the porous sintered metal layer are respectively filled and coated with the resin composition for sliding member (C7/L10-42).

**Claims 2-4** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 5,732,322) as applied to claim 1 above in view of Nakamura et al. (US 5,616,406).

Regarding claim 2, Nakamura et al. (US '322) discloses all the claim limitations as set forth above. Nakamura et al. (US '322) further discloses a resin composition comprising either 0.1 to 5% of molybdenum disulfide or 0.1 to 4% graphite (C5/L64-C6/L14), which are both solid lubricants as taught by Nakamura et al. (US '406) (C4/L25-28). Nakamura et al. (US '406) also teaches a resin composition for a sliding member (Abstract, C2/L20-31). The amount of said solid lubricants overlaps the claimed range of 0.1 to 2%. It would have been obvious to one of ordinary skill in the art at the time of invention to have selected the overlapping portion of the ranges disclosed by the reference because overlapping ranges have been held to be a *prima facie* case of obviousness. *In re Malagari*, 182 USPQ 549. The claimed amount would have been obvious to one of ordinary skill in the art through routine experimentation in an effort to optimize lubricating ability and wear resistance taking into consideration the characteristics of the resin composition, such as high chemical and heat resistance as well as friction and wear characteristics.

**Regarding claims 3 and 4**, Nakamura et al. (US'322) discloses all the claim limitations as set forth above. Nakamura et al. (US '322) does disclose fillers (C6/L49-59), but the

reference does not disclose the specific inorganic fillers.

Nakamura et al. (US '406) teaches a sliding member and a resin composition comprised of polytetrafluoroethylene (Abstract, C2/L20-31). Nakamura et al. further discloses 5 to 30% of wollastonite (C2/L23-31), which is reinforcing filler.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the inorganic filler, wollastonite, of Nakamura et al. (US '406) to the resin composition of Nakamura et al. (US '322), for the purpose of reinforcing the resin composition for the sliding member.

Regarding the amount of inorganic filler, since the instant specification is silent to unexpected results, the specific amount of inorganic filler is not considered to confer patentability to the claims. As the degree of reinforcement is a variable that can be modified by adjusting said amount of inorganic filler, the precise amount of inorganic filler would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed amount of inorganic filler cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the amount of inorganic filler to obtain desired degree of reinforcement (*In re Boesch*, 617 F.2d. 272,205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

**Claims 7 and 8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 5,732,322) in view of Nakamura et al. (US 5,616,406) and Kato et al. (US 5,906,967).

**Regarding claim 7**, Nakamura et al. discloses a resin composition for sliding member (Abstract, C1/L5-8), comprising 1 to 25% of component A selected from the group consisting of phosphates and barium sulfate (Abstract, C2/L15-24), which overlaps with the claimed range of 6 to 45%. Nakamura et al. further discloses 1 to 15% magnesium silicate and the balance of a tetrafluoroethylene resin (Abstract, C2/L15-24).

However, Nakamura et al. does not disclose both phosphate and barium sulfate in the same composition. Regarding the phosphate and barium sulfate of said claim, since both substances have an effect of facilitating formation of lubricating film of polytetrafluoroethylene on the sliding surface of the mating member is taught by Nakamura et al. (C4/L61-66), it is well settled to use a combination of them as *In re Kerkhoven*, 205 USPQ 1069, 1072 (CCPA 1980). i.e., it is well settled that is a *prima facie* obvious to combine two ingredients each of which is taught by the prior art to be useful for the same purpose.

Regarding the concentrations of phosphate and barium sulfate of said claim, since the instant specification is silent to unexpected results, the specific concentrations of phosphate and barium sulfate is not considered to confer patentability to the claims. As the formation amount of lubricating film is variable that can be modified by adjusting said concentrations of phosphate and barium sulfate, the precise concentrations of phosphate and barium sulfate would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed concentrations

of phosphate and barium sulfate cannot be considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the concentrations of phosphate and barium sulfate to obtain desired formation amount of lubricating film (*In re Boesch*, 617 F .2d. 272,205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

However, Nakamura et al. (US '322) does not disclose low-molecular weight tetrafluoroethylene. Kato et al. further discloses low molecular weight PTFE (C4/L66-C5/L16). Nakamura et al. (US '322) and Kato et al. are analogous art concerned with the same field of endeavor, namely sliding members comprising polytetrafluoroethylene. It would have been obvious to one of ordinary skill in the art at the time of invention to add the low-molecular weight tetrafluoroethylene of Kato et al. in a composition of Nakamura et al. (US '322), and the motivation to do so would have been to improve melt flow.

Regarding the amount of low-molecular weight tetrafluoroethylene, the specific amount of low-molecular weight tetrafluoroethylene is not considered to confer patentability to the claims. As the viscous flow is variable that can be modified by adjusting said amount of low-molecular weight, the precise amount of low-molecular weight tetrafluoroethylene would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the amount of low-molecular weight tetrafluoroethylene to obtain desired melt flow (*In re Boesch*, 617 F .2d. 272,205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed



in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

**Regarding claim 8**, Nakamura et al. discloses all the claim limitations as set forth above. Nakamura et al. further discloses a sliding member comprising a steel back plate and a porous sintered metal layer formed on the steel back plate (C6/L18-21), wherein pores and surface of the porous sintered metal layer are respectively filled and coated with the resin composition for sliding member (C7/L10-42).

**Claim 7** is rejected under 35 U.S.C. 103(a) as being unpatentable over Nakamura et al. (US 5,616,406) in view of Nakamura (US 5,732,322) and Kato et al. (US 5,906,967). *This is an alternative rejection of claim(s) 7 above to meet the limitations of the combination of barium sulfate and phosphate.*

**Regarding claim 7**, Nakamura et al. (US '406) discloses a resin composition devoid of lead and lead alloys for sliding member (C4/L55-59) comprising 1 to 20% by weight of barium sulfate, 1 to 15% by weight of phosphate, and the balance polytetrafluoroethylene (C2/L23-31). Nakamura et al. (US '406) also discloses a PTFE molding powder may be used wherein not more than 20% by weight is used (C3/L22-25). Therefore, the remaining amount of PTFE would be 10 to 60 % by weight (C3/L22-30).

However, Nakamura et al. (US '406) does not disclose magnesium silicate. Nakamura et al. (US '322) teaches 1 to 15% by weight of magnesium silicate (C2/L15-24). Nakamura et al. (US '322) and Nakamura et al. (US '322) are analogous art concerned with the same field of endeavor, namely resin composition for sliding member and sliding member comprising

polytetrafluoroethylene. It would have been obvious to one of ordinary skill in the art at the time of invention to add the magnesium silicate of Nakamura (US '322) in a composition of Nakamura et al. (US '406), and the motivation to do so would have been as Nakamura (US '322) suggests .

However, Nakamura et al. (US '406) does not disclose low-molecular weight tetrafluoroethylene. Kato et al. further discloses low molecular weight PTFE (C4/L66-C5/L16). Nakamura et al. (US '406) and Kato et al. are analogous art concerned with the same field of endeavor, namely sliding members comprising polytetrafluoroethylene. It would have been obvious to one of ordinary skill in the art at the time of invention to add the low-molecular weight tetrafluoroethylene of Kato et al. in a composition of Nakamura et al. (US '406), and the motivation to do so would have been to improve melt flow.

Regarding the amount of low-molecular weight tetrafluoroethylene, the specific amount of low-molecular weight tetrafluoroethylene is not considered to confer patentability to the claims. As the viscous flow is variable that can be modified by adjusting said amount of low-molecular weight, the precise amount of low-molecular weight tetrafluoroethylene would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the amount of low-molecular weight tetrafluoroethylene to obtain desired melt flow (*In re Boesch*, 617 F .2d. 272,205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

***Response to Arguments***

Applicant's arguments have been fully considered but they are not persuasive. The following comments apply:

A) Applicant's argument that Nakamura ('322) requires the presence of lead or lead alloys (P4) is not persuasive. Nakamura discloses that tin may be used in lieu of lead in which case the limitations of amended claim 1 are satisfied. (C2/L45-54) .

B) Applicant's argument that in Nakamura ('322), there is no description of the use of phosphates and barium sulfate in combination (P5) is not persuasive. Nakamura ('406) teaches the combination of phosphate and barium sulfate exhibit an effect of enhancing the lubricating film-forming property of the PTFE resin to the surface of a sliding surface and an effect of forming a lubricating film of the PTFE resin on the surface of wollastonite in the resin composition during sliding movement relative to the sliding member (C3/L55-67).

***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

### *Correspondence*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to NICOLE M. BUJE whose telephone number is (571)270-3879. The examiner can normally be reached on Monday-Thursday with alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on (571)272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/N. M. B./  
Examiner, Art Unit 1796  
12/4/2008

/Marc S. Zimmer/  
Primary Examiner, Art Unit 1796